

ABSTRACT

Apparatus and methods for diverting a portion of the drilling fluid that flows into a drilling assembly comprise diverting the drilling fluid into the annulus of a deviated wellbore at a flow rate corresponding to a velocity that is sufficient to transport cuttings to the surface while drilling progresses. The diverted drilling fluid is directed into the annulus at an angle to prevent erosion of the wellbore wall. The flow rate of the diverted drilling fluid is controlled to establish a fixed flow rate, or alternatively, a variable flow rate. Pressure is dissipated and fluid velocity is reduced as the diverted drilling fluid flows between a high fluid pressure within the drilling assembly to a lower pressure in the wellbore annulus.